

## **A New Genus and Species, *Koreoxyomus koreanus*, from Korea and Taxonomic Discussion on the Genus *Mozartius* of Japan (Coleoptera, Aphodiidae)**

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### **ABSTRACT**

A new genus and species belonging to the family Aphodiidae (Coleoptera), *Koreoxyomus koreanus* gen. et sp. nov., is described from Korea. And a genus known from Japan, *Mozartius* is discussed because it is almost same taxa with present new genus but its original description is not stable taxonomically.

Key words: *Koreoxyomus koreanus*, n. gen., n. sp., Aphodiidae, Coleoptera, Insecta, Korea

### **INTRODUCTION**

I have obtained some specimens belonging to the Aphodiidae collected from the northern mountainous area of South Korea. At the first glance, I thought that they were a species of the genus *Caelius* or *Psammoporus*, Aegialiidae or one of Psammodiini, Aphodiidae. But, they have membranous mandibles hidden under the clypeus and 2 transversal carinae at middle and hind tibia, and no granules on the head, nor transversal grooves on the pronotum. Consequently, this species is not Aegialiidae nor Psammodiini, but a new taxon of the Aphodiini. Of the Aphodiini, the most applicable genus for this species is *Mozartius*, known from Japan. This genus was stressed a characteristic of crenulated pronotum. But most characters, including the crenulation, defined in its original description are not valid, because they are very common to many taxa of Scarabaeoidea. So, I have hesitated to decide the genus of our sample, but I establish a new genus eventually.

### **Taxonomic examination of the genus *Mozartius* Nomura et Nakane 1951**

This genus established by a new species, *testaceus*, and its original description and the remarks are

as follows:

"Head nearly semicircular, emarginate in front, with a distinct frontal suture between the eyes, and in front of it with an arched carina. Side margins of pronotum crenulate and the crenulation becomes larger towards the base, the upper surface with a shallow and broad longitudinal furrow in the middle, behind the front margin with narrow impressions and in the middle of each side with an oblique shallow impression. Elytra gently dilated posteriorly, each elytron with a small humeral tooth, finely and feebly striate. Fore tibia with 3 outer teeth, the middle and hind tibiae with distinct transverse carinae." "This genus is apparently related to *Caelius* Lewis in the crenulate side margins of pronotum, but the latter genus never belongs to Aphodiinae, but to Aegialiinae (cf. Nomura, 1943). Therefore the genus *Mozartius* may take the place of *Caelius* in the subfamily Aphodiinae."

The authors' declaration on their upper taxa was recognized widely. But Balthasar (1964) asserted that the genus *Mozartius* was a synonym of *Caelius* belonging to Aphodiini, because he failed to notice that the Aegialiidae had the mandibles well sclerized and exposed to out of the clypeus.

On the other hand, the crenulated pronotum is not shown only in *Caelius* or *Annegalia* of Aegialiidae but also in some genera belonging to Psammodiini of Aphodiidae. Other characters are also applicable to many taxa of Scarabaeoidea in each or compoundly. For example, several species belonging to the genera *Psammodius* group, *Rhyssmodes*, *Diastictus* etc. of Psammodiini fit well with the definition of *Mozartius*. On the original description of this genus, Masumoto (1984) also pointed out as follow: "the description of the genus did not show certain important characteristics". Therefore, this description is not valuable for supporting their new genus, and our sample can not be applicable to this genus. This fault brought about another problem within the species level.

This genus includes only 3 species with a subspecies, *testaceus*, *jugosus*, *j. shikokuensis* and *uenoi*, of Japan, hitherto. The first, *testaceus* was a type species, and collected under the dead leaves of the sandy soil of the mountain. But, Masumoto (1985) represented that this species is perhaps a local variation of *jugosus*. The second, *jugosus* Lewis 1895, was described under the genus *Oxyomus* and later it was combined with *Mozartius*, due to the crenulated side margins and median impression of the pronotum, clypeal dent and humeral teeth of elytra. The schist cave's species, *uenoi* Masumoto 1984 has unique characteristics of degraded compound eyes and hind wings. So, the common characteristics of above 3 species are only crenulated pronotum and humeral teeth, but the ecological and other morphological characters are greatly different. Here, we must consider about next questions. Can we arrange a species, *uenoi* within the genus *Mozartius*, and can we recognize this genus?

The Korean sample resembles roughly *M. uenoi*, except for the body size, but each tooth and pronotal crenulation are same with *M. jugosus*. Furthermore, our mountainous species has some proper characteristics such as 8-segmented antennae, distinct compound eyes and brachypterous hind wings. Consequently, We can not identify Korean species and the genus *Mozartius*, and I name him as a new genus with a new species, *Koreoxyomus koreanus*.

### ***Koreoxyomus* gen. nov.**

**Description.** Oblong, thick, weakly constricted at waist portion, dark and simple colour, weakly lustrous. Sexual dimorphism not visible.

Head large, punctate, partially convex, not tubercle (fig. 3). Clypeus abruptly downward, anterior

margin shallowly emarginate, with a dental tubercle at each sides. Antenna 8 segments in both sexes (fig. 4). Compound eyes small but complete. Mandible membranous, with closed hairy expansions at internal side (fig. 7). (cf. fig. 9: Hypopharynx and Labium). Pronotum transverse, convex, coarsely punctate, with anterior angles round, hind angles largely and obliquely round, anterior part large by enlarged side margins, lateral and basal margins crenulate with a hair between each tooth (figs. 1-3 and 5). Elytra cover pygidium, with sharp humeral teeth, 10 striae very large with largely expanded punctures, interstices narrow but convex, brachypterous hind wing. Fore and hind coxal cavities closed, middle one separated. Femora strongly punctate on ventral surface. Fore tibia with 3 outer teeth and a internal spur. Middle and hind tibia with 2 outer transversal carinae accompany some bristles, 2 terminal spur, terminal setaceous fringe of same length, metatarsus long.

**Type species.** *Koreoxyomus koreanus* sp. nov.

**Remarks.** This genus resembles the genus *Oxyomus*, especially in large and convexed head, crenulated pronotal margins, humeral teeth and narrowed elytral interstices. So, the new name take the meaning of Korean *Oxyomus*, and the gender obey that naturally. But, it differs from 8-segmented antennae in both sexes, clypeal dents, brachypterous hind wings and the terminal fringes of tibia with same length.

### ***Koreoxyomus koreanus* sp. nov.**

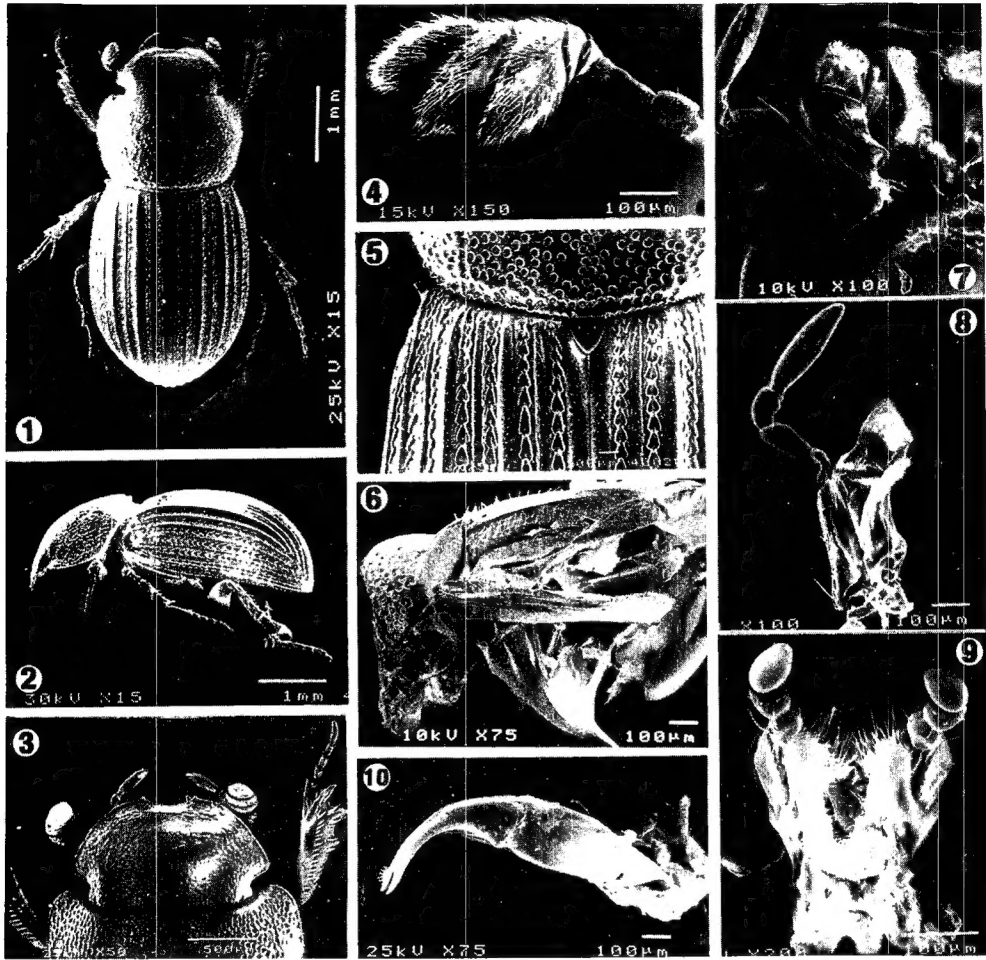
**Description.** Body length: 3.7-4.7 mm. width: 1.9-2.3 mm. Oblong, high but convexity of dorso-median part not strong, weakly constricted at waist portion. Turbid black to dark brown with yellowish brown antennae and maxillary palpus, reddish black legs and most margins of each edges.

Head: Very large, frons convexed at antero-median part, abruptly downward anterior border and divided by a deep transversal groove; frontal punctures fine or very large, closed reticulately, continuously distributed to vertex and large gena (fig. 3). Clypeus large, abruptly downward from anterior part of frons, anterior margin shallowly emarginate, with a dental tubercle in each sides, punctures fine, sparse. Maxillary palpus long, not developed sensory hairs (figs. 7, 8). Compound eyes small.

Thorax: Pronotum transverse, high, anterior angles not long but largely round, hind angles largely and obliquely round, 2/3 of frontal part broader than hind part because side margins largely and flatly expanded to outside. Lateral and basal margins lowly crenulate, with a short setaceous hair between each small tooth (figs. 2, 5). Disc with a longitudinal shallow groove at postero-median part, discal punctures large or microscopic, nearly round, deep, distributed irregularly. Scutellum triangular, simple, but anterior hidden part under pronotum with punctures large, nearly closed, accompany a small setae. Meso- and metasternal punctures large, deep, very closed.

Wings: Brachypterous hind wing of short rod form, with some hairs at near tip (fig. 6). Elytra cover pygidium, broadest at middle part, with humeral teeth, small but distinct and sharp, 10 very large striae, joined of 1st-10th, 2nd-9th, 3rd-8th at terminal edge, remainders meet together before 3rd-8th joint. Strial punctures small, round, deep, enclosed with a shallow puncture which is more and more largely expanded in a form of plumply long triangular or converted long heart, from a small puncture to next one (fig. 5). Interstices narrow, shallow but 2nd, 4th and suture more larger and higher than others, 7th and 9th not reach at base, with some microscopic punctures.

Legs: Fore femur thick and large. All femoral punctures of ventral surface large, deep, closed. Fore



**Figs. 1-10.** *Koreoxyomus koreanus* gen. et sp. nov.: 1, dorsal view; 2, lateral view; 3, head; 4, antenna; 5, punctures on the pronotum and elytra; 6, hind wing; 7, maxillary and mandible; 8, left maxillary, dorsal view; 9, hypopharynx and labium; 10, male aedeagus.

tibial spur longer than 1st tarsal joint, suddenly curved and sharpened at tip. Upper spur of middle and hind tibia shorter than metatarsus or 2-4th joints together. Middle metatarsus as long as near 2-4th joints together, hind one shorter than all others together. Claws fine but very long.

Abdomen: Sternites and pygidium covered with dirty yellow, moderate, weakly setaceous hairs, but 7th with a rowed marginal long hairs.

Male aedeagus: Median piece thick, nearly cylindrical, paramere very long, more and more slender, suddenly narrowed and curved at median part, with some long hairs at ventro-terminal part (fig. 10).

**Holotype.** ♂, 13.X.1995, Korea, Kangwŏndo, Hongchŏnkun, Mt.Gyebangsan.

**Paratypes.** 68 ex, same data with holotype; 1 ex, 14.VI.1995, same site with holotype; 4 ex, 14.VII.1995, ditto; 3 ex, 14.XI.1995, ditto.

The types are deposited in the collection room of Sungshin University, Korea.

**Remarks.** This species seems to hibernate in adult stage because they were appeared from June, after the thawing season, but large population were collected in the autumn. The collections were

carried out at the altitude 900 m of Suchöng-gol, Nae-myön, located in N-Western slop of Gyeongbongsan mountain(1,577 m) by Dr. Hae-Chul PARK and his colleague of the Biodiversity Laboratory, Forestry Research Institute, Korea. They were attracted to the bait trap of salt water added with chemical detergent from 7th to 13th in each month. The ground of each sites was covered with dead leaves and the dominant plant was *Quercus mongolica*.

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韓國産 똥뽕이과의 1新屬, 1新種의 記載 및 日本産 *Mozartius*屬의 分類學的 檢討

金 鎮 一

(誠信女大 生物學科)

적 요

江原道 洪川郡 桂芳山에서 採集된 1種의 昆蟲이 똥뽕뽕이과의 똥뽕뽕이族에 속하나 非糞食性인 新屬 및 新種이기에 이를 톱니똥뽕뽕이屬의 톱니똥뽕뽕이 (*Koreoxyomus koreanus* gen. et sp. nov.)로 命名 記載하였다. 아울러 日本産인 *Mozartius*屬에 대하여 分類學的으로 檢討하였는데 이는 本 新屬이 이屬과 동일한 分類群인 것으로 보이나 *Mozartius*의 原記載에 記述된 特徵이 매우 不完全하며 補充研究나 追加記載도 없어서 正當적인 分類群名으로 認定하기 어렵기 때문이었다.